

A STATISTICAL EVALUATION AND ANALYSIS OF LEGISLATIVE AND CONGRESSIONAL REDISTRICTING IN CALIFORNIA: 1974 – 2004¹

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Summary/Abstract

The process of legislative and congressional redistricting after each decennial census has been a heated issue in the past, especially within the State of California. Moreover, control over the California redistricting process has come to the forefront in recent months with the qualification of Proposition 77 for the November California Special Election ballot. Over the past thirty years, California has experienced three distinct redistricting plans: two court-ordered plans (1974-1980 and 1992-2000), a partisan gerrymander (1982-1990), and a bipartisan gerrymander (2002 – present). The purpose of this project was to determine through statistical analysis whether the common arguments against a perceived gerrymander were, in fact, true. This project evaluates the four redistricting plans in each legislative category (the State Assembly, the State Senate, and the California Congressional Delegation) using hypothetical seats-votes curves derived from the “uniform partisan swing” theory. These curves are then compared with an ideal proportional representation curve to determine the plan that most accurately represents the political preferences of the California electorate. The results demonstrate that the 1992 court-ordered district plans reflect the partisan preferences of the electorate far more accurately than both the current bipartisan gerrymander and the partisan gerrymander of the 1980’s. Thus, partisan and bipartisan gerrymanders increase electoral responsiveness to the point that legislative seats are overly-responsive and grossly reward the party with the most statewide votes. In stark contrast, court-ordered plans that closely resemble the standards set forth in Proposition 77 produce a more proportional response and accurate reflection of the electorate’s partisan preferences in California.

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Introduction

The creation and composition of legislative and congressional districts after each decennial census has been an incredibly controversial issue within American politics. With its perceived effect on incumbency advantage, ideological polarization, electoral responsiveness, and partisan gains within a Legislature or a Congressional Delegation, one may argue that the process of redistricting has been the most frequently studied aspect, whether directly or indirectly, of congressional elections scholarship in the last 25 years.²

The State of California has recently been at the center of an especially impassioned public debate concerning control over the redistricting process. California, like many other states, entrusts the process of legislative and congressional redistricting to the State Legislature, which is comprised of two houses: the State Senate, a forty member upper house, and the State Assembly, an eighty member lower house. However, the California Supreme Court has been compelled twice in the past four redistricting periods (1974-1980 and 1992-2000) to appoint a panel of “Special Masters”³ to redraw legislative and congressional boundaries.⁴ Each of these instances occurred after Republican governors (Ronald Reagan in the early 1970’s and Pete Wilson in the early 1990’s) repeatedly vetoed district plans drafted by a Democratic legislature. While court-ordered redistricting was certainly contentious, the periods between

² For examples of such research see Gelman and King (1991), King (1989), Ost diek (1995), Bullock (1982), Basehart and Comer (1991), Born (1985), Gopoian and West (1984), Niemi and Fett (1986), Niemi and Jackman (1991), Niemi and Abramowitz (1994), and Lyons and Galderisi (1995).

³ The Special Masters have traditionally been a panel of three retired judges.

⁴ For a brief history of contemporary redistricting in California, please see *California Reapportionment Initiative, Background & Chronology: Redistricting in California*, Institute of Governmental Studies, University of California – Berkeley, <http://www.igs.berkeley.edu/library/htRedistricting.html>.

court-ordered redistricting were perhaps even more controversial. The redistricting periods after the 1980 and 2000 censuses have been characterized in the media as partisan (maximizing Democratic Party legislative seats) and bipartisan (protecting incumbents in their current seats) gerrymanders, respectively. This media characterization and public perception has further politicized the redistricting process.

Additionally, over the past 25 years, three separate initiative constitutional amendments, proposing to permanently remove the redistricting process from the Legislature and place it in the hands of a nonpartisan judicial commission, have qualified for the ballot. More recently, Governor Arnold Schwarzenegger has made Proposition 77 (a judicial commission redistricting initiative) the centerpiece for the Special Election scheduled for November 8, 2005. These initiative constitutional amendments have been supported largely by those who assert that the Special Masters have historically drawn substantially more representative and responsive districts than the Legislature. Moreover, the initiative backers have suggested that when districts drawn by the State Legislature *are* responsive, they are perversely and overly so. Furthermore these districts drawn by the Legislature distort the preferences of the electorate within the State Assembly, the State Senate, and the California Congressional Delegation.⁵ This study tests their hypothesis and determines whether perceived electoral responsiveness bias was, in fact, a historical and/or current reality in California.

⁵ People's Advocate, a political organization funded by Ted Costa has led the campaign for 2 initiative constitutional amendments over the past 7 years; for more information regarding their stance on legislative and congressional redistricting, visit <http://www.fairdistricts.org>.

Methods

The hypothesis was tested employing the theory of “uniform partisan swing” to create hypothetical seats-votes curves for each election year between 1974 and 2004. A seats-votes curve is a chart that reflects, under a certain redistricting system, the number of legislative or congressional seats the Democratic Party will control within a state at a certain percentage of the Democratic statewide vote. For example, the Democrats may receive fifty percent of the statewide State Assembly vote, but ultimately win fifty-three percent of the State Assembly seats. The hypothetical curves were compared to an “ideal” proportional representation curve (ideal being that fifty percent of the statewide vote would translate to fifty percent of the legislative seats) to determine the extent to which each election year deviated from the proportional representation model. The results were then aggregated according to redistricting decade and compared to determine which decade best fits the proportional representation ideal.

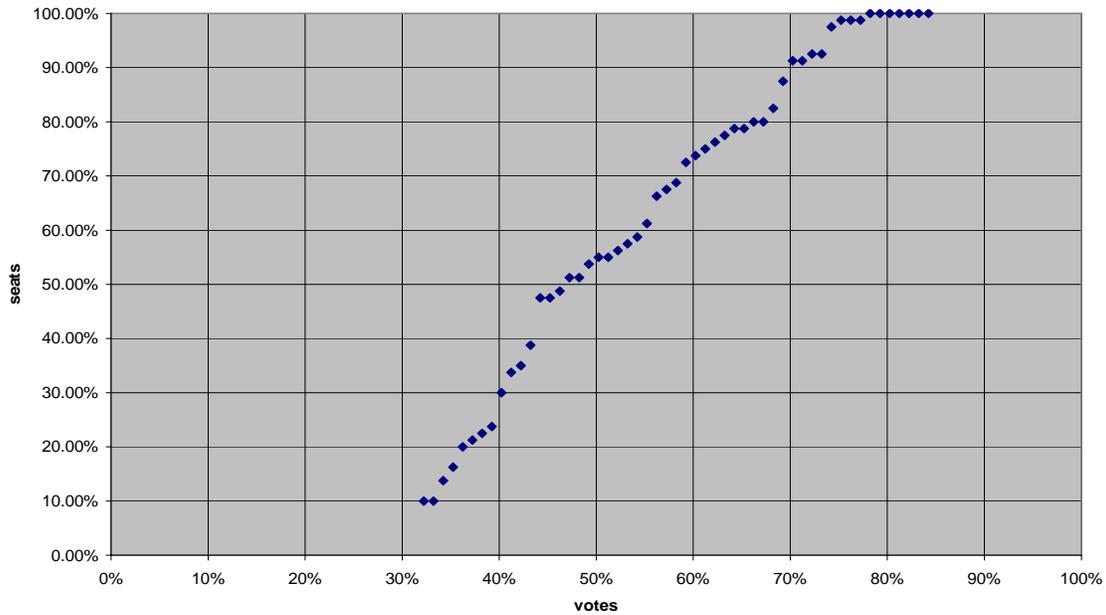
While many methods have been used to analyze redistricting partiality,⁶ the creation of hypothetical seats-votes curves under the uniform partisan swing assumption requires a very simple calculation to determine the extent of responsiveness bias within a specific set of districts. To carry out these tests, the electoral returns in each of the 80 State Assembly, 40 State Senate, and allotted

⁶ See Abramowitz (1983), Gelman and King (1994), or Niemi and Jackman (1991) for other methods.

Congressional districts were compiled into a spreadsheet program.⁷ The percentage of both Democratic votes and Democratic seats in the two party system were determined. To create the hypothetical curve, each district was allotted an additional one percent Democratic vote, hence a uniform one percent (partisan) Democratic swing distributed evenly statewide. The number of seats compared to the original number of votes plus one percent were then calculated. This process was completed for fifty-two iterations (twenty-six iterations in each direction, a uniform vote swing for the Democrats or a swing against the Democrats). The results of each of these iterations were then plotted as an xy scatter plot with percentage of seats plotted along the x-axis and percentage of votes plotted along the y-axis. A sample seats-votes curve scatter plot is shown in Chart 1.⁸

⁷ All data was taken from official election returns found in the California Statement of Vote and Supplement to the Statement of Vote, published by the California Secretary of State after each statewide election. For those candidates who secured both the Democratic and Republican nomination, their true party registration was confirmed in both the appropriate California Roster, compiled each year by the California Secretary of State as well as the appropriate Handbook of the California Legislature at Sacramento, compiled each year by the Secretary of the California State Senate and the Chief Clerk of the Assembly.

CHART 1
Assembly 1974



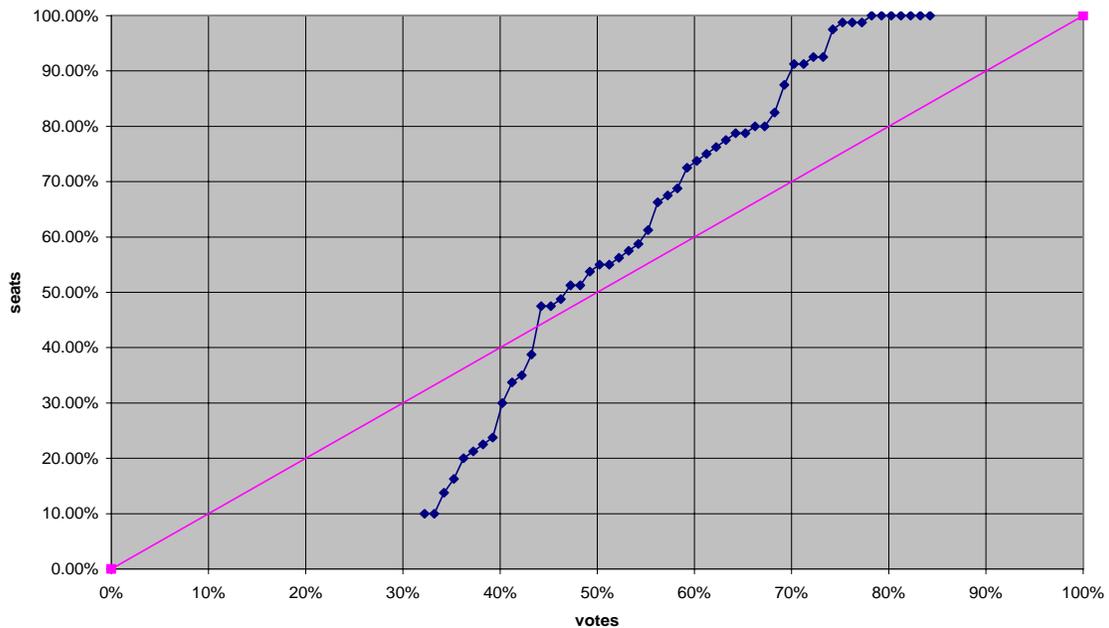
This method does produce some noticeable idiosyncrasies. First of all, districts with only one major candidate can certainly skew the results. For the purposes of this paper, it was assumed that had the absent major party been able to field a candidate, he/she would have won at least 25% of the vote in the district.⁹ Furthermore, the data will obviously be skewed near the Democratic vote extremes of 0% and 100%. Beginning in 1974, each election has netted the Democrats somewhere between 40% and 60% of the statewide vote. Therefore, this study only focuses on the hypothetical curve between those boundaries, thus excluding the obviously flawed data. Finally, it should be noted that this study uses exclusively two party vote returns, even in the few cases that a third party candidate or an independent won the legislative seat. This hard rule was put in place in order to defer subjective “value judgments” as to the true makeup of a

⁹ This is in line with similar assumptions made in previous research such as Gelman and King (1991).

certain district or true voter intentions. That is, the two party vote was used even in special cases such as when a Democrat wins a district because two Republicans (one of which was a write-in candidate) split the Republican vote in a heavily Republican district. Moreover, the use of only two parties makes a greater case that the results of an election should, in fact, be proportional.

Each data point in the xy scatter plot was then connected by a straight line to the adjacent data point to create the hypothetical “curve.” Next, an “ideal” proportional representation curve ($y=x$) was plotted along the same axis. See Chart 2 for an example.

CHART 2
Assembly 1974



Finally, the difference in area between the hypothetical curve and the ideal curve were calculated (within the 40-60 parameters discussed previously). Each

year was then compared and compiled into its appropriate redistricting period for further analysis.¹⁰

Results

Did the observed statistics support the initial hypothesis? Are districts drawn by the court more responsive to the partisan preferences of the statewide electorate than those drawn by the State Legislature? The results in Table 1 strongly suggest that a redistricting process administered by the Special Masters create districts that are, at the very least, as proportionally responsive and acceptable as those districts drawn by the legislature and generally more so.

¹⁰ For a full compilation of charts, please see Appendices A, B, and C

TABLE 1¹¹**Area between proportional representation curve and hypothetical seats-votes curve**

	<u>Assembly</u>	<u>Senate</u>	<u>Congress</u>
1974	1.25	2.88	0.37
1976	1.12	1.97	1.02
1978	1.08	2.34	1.25
1980	0.94	0.53	0.72
AVERAGE (MIDDLE)	1.0975	1.93	0.84
1982	0.78	1.48	1.39
1984	0.86	0.67	1.58
1986	0.71	2.25	1.5
1988	0.59	0.55	1.68
1990	0.85	2.53	1.34
AVERAGE (MIDDLE)	0.758	1.496	1.522
1992	0.71	0.66	0.63
1994	0.73	2.22	0.43
1996	0.69	1.39	0.54
1998	0.57	1.93	0.26
2000	1.02	0.87	0.43
AVERAGE (BEST)	0.744	1.414	0.458
2002	1	2.34	1.6
2004	0.69	0.5	1.74
AVERAGE (WORST)	0.845	1.42	1.67

By averaging each of the three aggregate statistics (Assembly, Senate, and Congress) for each redistricting period, one may assess each period's relative responsiveness to the electorate's partisan preferences and conformation to the ideal proportional representation curve. The period that most reflected the partisan preferences of the electorate was 1992-2000 with a combined average area of 0.87. The 1982-1990 and 1974-1980 periods were second with 1.26 and 1.29, respectively. These two calculations were well within the margin of error of each other. The redistricting plan that least conformed to the ideal proportional curve and that least represented the partisan preferences

¹¹ Data compiled by the author.

of the California electorate is the current system, a bipartisan gerrymander which has been in place since 2002.

One must also consider the direct effects of a redistricting plan. That is, should there be any resultant effect of the redistricting process, one would observe this effect in the election returns directly following the round of redistricting. In this case, the elections would be in the years 1974, 1982, 1992, and 2002.

Concerning the California State Assembly, the 1992 election (a product of court-ordered redistricting) most accurately responded to the political preferences of the electorate with an area of 0.71. Conversely, the 1974 election, also a product of court-ordered redistricting, least conformed to the proportional representation model with an area of 1.25. 1982 and 2002 ranked second and third, respectively, with areas of 0.78 and 1.

The California State Senate calculations yielded similar results. The 1992 election yielded an area of 0.66 while the 1974 election produced an area of 2.88, the largest area of any election between 1974 and 2004. Again, 1982 and 2002 were ranked second and third.

It was in the Congress, however, where the manipulative results of the redistricting processes were the most clear and decisive. 1974 yielded the lowest calculated area at 0.37. The second closest to the proportional representation model was 1992 with an area of 0.63. 1982 and 2002 were unexpectedly similar with areas of 1.58 and 1.6. These two calculations are clearly well within the margin of error for the methods employed in this study.

The average election returns over redistricting periods were similar to those elections, in terms of rank, following a redistricting year. In fact, for the California State Assembly, the rankings were exactly the same. The redistricting period of 1992-2000 had the lowest average area at 0.744. In a close second was the 1982-1990 period with an average area of 0.758. The 2002-present period averaged at 0.845, while the 1974-1980 set of districts was the most aberrant, registering an average area of 1.098.

The State Senate was similarly lopsided. The first three periods (1992-2000, 1982-1990, and 2002-present) were closely grouped together. Their respective areas were 1.414, 1.496, and 1.42. The 1974-1980 period was the outlier of the four groups, with an average area of 1.93.

The aggregate Congressional Delegation results were as startling as the single election year calculations. The 1992-2000 period was the closest to the proportional representation model with an average area of 0.458. The next closest aggregate period was 1974-1980, which had an average area of 0.913. The 1982-1990 and 2002-present periods were significantly larger than the average areas of the 1990's and 1970's. Their areas were 1.42 for 1982-1990 and 1.67 for 2002-present.

Discussion

When it comes to the effectiveness of legislative redistricting conducted by the California State Legislature or by court-appointed Special Masters, the empirical results are fairly clear. The calculated results illustrate that districts for

the State Legislature and the Congressional Delegation, drawn by the Special Masters in 1992, more closely conform to the ideal of proportional representation than the other three rounds. Furthermore, the average areas of each redistricting period clearly support the initial hypothesis. Even the 1970's are well within the margin of error of the second best decade, the 1980's. This fact again confirms that at the very worst, a court-ordered plan would produce similar results to that of a plan created by the Legislature

This analysis is further supported by the individual calculations of the post-redistricting elections of 1974, 1982, 1992, and 2002. Again, for the election in 1992, the seats-votes curves most closely resembled the proportional representation model. However, the 1982 election was closer than the other years, differing in area from the 1992 election by only 0.07. Furthermore, the 2002 and 1974 elections were the most distorted, with 0.29 and 0.54 more than the 1992 election, respectively.

The analysis is also supported by the results for the California State Senate. On average, as in the Assembly, the 1990's districts were the closest fit to the proportional representation curve. Again, the 1980's (along with the 2000's) were very similar to the 1990's results. However, the 1970's were the most warped decade, differing by an additional 0.434 from the next closest decade (the 1980's). It should also be noted in this discussion that the State Senate returned, on average, the largest areas between the two curves. This may be attributable to the fact that the Senate is comprised of only forty

members and, thus, may not as easily conform to the true proportional model as compared to a larger body such as the State Assembly.

In terms of the Congressional Delegation, control over the redistricting process had the most profound and conclusive impact. The periods in which court-ordered districts were in place resembled the proportional representation model much more accurately. This impact is shown in both the average numbers as well as the individual elections directly following the implementation of redrawn districts. In fact, the court-ordered period with the largest average area (the 1970's with an average of 0.84) was nearly half the area of the 2002 and 2004 districts. Moreover, the districts in place in the 1990's returned an average area that is slightly larger than half the average area of the 1970's. It is obvious that the effects of court-ordered redistricting are much more pronounced when looking at congressional districts.

For a moment, let us consider recent elections. When compared to the districts of the 1990's, the current districts seem to create a legislature as well as a Congressional Delegation that is significantly less proportionally responsive than those of only five years ago. As shown in Table 2, the first two election cycles after the implementation of the current districts were less responsive than the last two cycles before the districts were redrawn. These results are decidedly significant in that one would expect to see the Legislature as well as the Congressional Delegation to be the *least* proportionally responsive at the end of a decade. This analysis demonstrates that, in terms of proportional responsiveness to the electorate, the people of California may very well be better

off with the outdated court-ordered districts of the 1990's than the current district system.

TABLE 2¹²
**Area between proportional representation curve and
hypothetical seats-votes curve for the past four
election cycles**

	<u>Assembly</u>	<u>Senate</u>	<u>Congress</u>	
1998	0.57	1.93	0.26	
2000	1.02	0.87	0.43	
AVERAGE	0.795	1.4	0.345	
2002	1	2.34	1.6	
2004	0.69	0.5	1.74	
AVERAGE	0.845	1.42	1.67	

In summation, the data confirms the initial hypothesis, with some debatable exceptions. While the districts for the State Legislature were more distorted in the 1970's than in any other decade, the Congressional districts were much more proportionally responsive to the partisan preferences of the electorate. It is certain from the data of both the 1970's and 1990's that members of Congress have the most to lose from redistricting conducted by the Special Masters. Additionally, the districts drawn by the Special Masters in the 1990's were closer to the proportional model than any other decade across the board. Even in the 1974-1980 period, the averages of the aggregate data for the redistricting period clearly show that a court-ordered plan is similarly if not much more proportionally responsive to the partisan preferences of the electorate than the current system. Again, the data would lead one to conclude that court-ordered districts, at the very least, create districts with similar responsiveness to those districts created by the State Legislature. Recent history shows that a

¹² Data compiled by author

court-ordered plan provides districts that are both more proportionally responsive and responsible to the electorate. Moreover, court-ordered plans are overtly nonpartisan with the provision that the Special Masters be *retired* and thus have a minimal stake in the two party's political fortunes. This aspect is incredibly valuable, if for nothing more than the public perception of a system without the alleged corruption of the State Legislature.

Political scientists know that the American system is not completely proportionally representative. It is in fact majoritarian, with the winning party holding an amount of single-member seats slightly larger than its statewide or nationwide vote. The question remains, how much is slightly too much? Surely it is not the gross distortions of the current gerrymander. Additionally, the public may not see the American electoral system as majoritarian. The average voter expects a proportional or near-proportional outcome. This expectation has certainly been suggested in recent media coverage. Moreover, a system that seems overtly corrupt and biased, such as those districts drawn by the State Legislature, can rarely be useful when it comes to voter participation and voter confidence in the electoral system. Ultimately it is clear, from both the empirical results and the common sense notion of conflict of interest in the California State Legislature that nonpartisan, court-administered redistricting, such as the plan proposed in Proposition 77, *is the best method* for creating representation in California that is the most proportionally responsive, best reflects the partisan intentions of the voters of California, and is widely perceived as a fair and just process.

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